



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/059,130	01/31/2002	Takahiro Ishihara	32739M072	5979

441 7590 02/24/2003

SMITH, GAMBRELL & RUSSELL, LLP
1850 M STREET, N.W., SUITE 800
WASHINGTON, DC 20036

EXAMINER

NOTE, JANIS L

ART UNIT

PAPER NUMBER

1756

DATE MAILED: 02/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

49-3

Office Action Summary

Application No.

10/059, 130

Applicant(s)

ISHIHARA et al

Examiner

J. DOTE

Group Art Unit

1756

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on 1/31/02
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-8 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-8 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☒ All ☐ Some* ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____ ☐ Interv w Summary, PTO-413
- ☒ Notice of Reference(s) Cited, PTO-892 ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948 ☐ Other _____

Office Action Summary

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f), or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-3 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,863,694 (Sano) combined with US 5,176,978 (Kumashiro).

Sano discloses a toner comprising toner particles having rounded surfaces. The toner particles comprise 100 parts by

weight of a polyester binder resin, 8 parts by weight of carbon black, and an offset-preventative agent (i.e., releasant), wherein the releasant and colorant are dispersed in the binder resin. The toner has a volume average particle diameter of 9.1 μm or 8.2 μm and comprises 2.0 or 2.3% by volume, respectively, of toner particles having a particle size of 5 μm or less. See examples 1 and 2 in Table 1. The volume average particle diameters of 9.1 μm and 8.2 μm are within the range of 7 to 13 μm recited in instant claim 8. The amount of 8 parts by weight of carbon black is within the range of 8 to 13 parts by weight per 100 parts by weight of the binder resin recited in instant claim 7.

Sano does not disclose that its toner comprises a volume percentage of particles having a particle size of 5.04 μm or less as recited in the instant claims. However, as discussed above, Sano discloses that the toners comprise 2.0 or 2.3% by volume of particles having a particle size of 5 μm or less. The numerical values of 2.0 and 2.3 are within the range of 1.5 to 2.3% by volume recited in instant claim 3. Because the size difference between 5 μm and 5.04 μm is small and because the volume percentages of 2.0 and 2.3 are within the range of 1.5 to 2.3% by volume recited in instant claim 3, it is reasonable to presume that Sano's toners in example 1 and 2 comprise particles having a particle size of 5.04 μm or less in the amount recited in the instant

claims. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Sano does not disclose that the releasant dispersed in the binder resin has an average particle size as recited in the instant claims. Sano does not limit the type of releasant used. Sano discloses that the releasant can be polyolefin waxes, such as low molecular weight polyethylene or polypropylene waxes. Col. 5, lines 18-27. The toners in Sano's examples 1 and 2 are obtained from a melt-kneading-pulverization method.

Kumashiro teaches toners comprising a wax consisting of a low molecular weight polypropylene and a particular high density polyethylene, wherein the wax is dispersed in the binder resin to form domains having a size of 0.1 to 1.5 μm . Col. 1, lines 47-54. Kumashiro exemplifies toners comprising said wax domains having a size of 1.2 μm . See Table 1, example 4. The domain size of 1.2 μm and the upper domain size of 1.5 μm in the range of 0.1 to 1.5 μm are within the range of 0.9 to 2.5 μm recited instant claim 2. Kumashiro discloses that the size of the wax domains in the toners can be controlled by the addition of water in the melt kneading of the toner materials. Col. 7, lines 5-8. Kumashiro discloses that toners comprising its particular wax domains provide toner images that are "free from the occurrence of the stains and blurs due to rubbing of the developed images." Col. 1, lines 42-46, and Table 2, example 4.

According to Kumashiro, said toners also prevent high-temperature offset and have improved storage stability, and no toner aggregation or coagulation. See Table 4, example 4, and col. 11, lines 38-45.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Kumashiro, to use Kumashiro's wax as the releasant in the toners disclosed in Sano's examples 1 and 2, and to adjust the wax domain size, through routine experimentation as taught by Kumashiro, such that the resultant toners comprise wax domains having a size of 1.2 μm , which is within the range of 0.9 to 2.5 μm recited in instant claim 2. That person would have had a reasonable expectation of successfully obtaining toners having improved storage stability and that provide images having the benefits disclosed by Kumashiro.

4. Claims 1-6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,976,754 (Asada) combined with Sano.

Asada discloses a toner comprising toner particles comprising 100 parts by weight of a fixing resin, 7 parts by weight of carbon black, 5 parts by weight of a particular releasing agent, a polyolefin wax having a melting point of not more than 120°C, and 2 parts by weight of a styrene-ethylene graft copolymer, a compatibilizing agent for the binder resin and

the releasing agent. The polyolefin wax is dispersed in the fixing resin having an average particle diameter of 1.0 μm . See Table 1, example 5. The wax average particle size of 1.0 μm is within the range of 0.9 to 2.5 μm recited in instant claim 2. The amount of 2 parts by weight of the compatibilizing agent (i.e., wax dispersing agent) is within the range of 0.1 to 5 parts by weight per 100 parts by weight of binder resin recited in instant claim 5. Asada discloses that volume average particle diameter of the toner may be adjusted to 5 to 11 μm , preferably from 7 to 10 μm . Col. 5, lines 18-22. The volume average particle diameter of 7 to 10 μm is within the range of 7 to 13 μm recited in instant claim 8. Asada discloses that its toner has superior blocking resistance and filming resistance and is capable of being fixed at low temperatures. Col. 1, lines 53-60; and Table 1, example 5.

Asada does not disclose that its toner has the particle size distribution recited in instant claim 1. Asada's toner in example 5 is obtained by a melt-kneading-pulverization-classification method.

Sano teaches toners comprising toner particles having rounded surfaces and having the following size distributions: $\log [Y] = 0.16X + k$ ($2.4 \leq k \leq 2.7$) and $5.0 \leq X \leq 11.7$ (μm), where wherein $[X]$ represents the volume average particle size and $[Y]$ represents % by number of particles of not more than 5 μm .

Col. 2, lines 1-11. Sano discloses that the toner volume average particle is from 5.0 to 11.7 μm . Col. 2, lines 54-55. Sano exemplifies toners having a volume average particle diameter of 9.1 μm or 8.2 μm and comprising 2.0 or 2.3% by volume, respectively, of toner particles having a particle size of 5 μm or less. See examples 1 and 2 in Table 1. The volume average particle diameters of 9.1 μm and 8.2 μm are within the range of 7 to 13 μm recited in instant claim 8, and within the range 7 to 10 μm taught by Asada. Sano discloses that said toners can be obtained by classifying toners obtained by pulverization to a desired particle size, by using a classification-rotor classifier, or mixing such toners by means of a pulverizer utilizing mechanical impact force. Col. 3, line 33, to col. 4, line 31. Sano discloses that said toners have good chargeability, provide less spent on carriers and charge giving members, and are suitable for use in image-forming apparatus of digital systems. Col. 1, lines 60-67. According to Sano, said toners also provide up to 10,000 excellent copies free from fog. See Table 2, examples 1 and 2.

Sano does not disclose that its toner comprises a volume percentage of particles having a particle size of 5.04 μm or less as recited in the instant claims. However, as discussed above, Sano discloses that the toners comprise 2.0 or 2.3% by volume of particles having a particle size of 5 μm or less. The numerical

values of 2.0 and 2.3 are within the range of 1.5 to 2.3% by volume recited in instant claim 3. Because the size difference between 5 μm and 5.04 μm is small and because the volume percentages of 2.0 and 2.3 are within the range of 1.5 to 2.3% by volume recited in instant claim 3, it is reasonable to presume that Sano's toners in example 1 and 2 comprise particles having a particle size of 5.04 μm or less in the amount recited in the instant claims. The burden is on applicants to prove otherwise.

Fitzgerald, supra.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Sano, to further process the toner in Asada's example 5 as taught by Sano such that the toner comprises rounded surfaces, and to adjust through routine experimentation the volume average particle size of said toner such that the resultant toner has a volume average particle size of 9.1 or 8.2 μm and comprises 2.0 or 2.3% by volume of particles having a particle size of 5 μm or less to satisfy the particle size relationship taught by Sano. That person would have had a reasonable expectation of successfully obtaining a toner having the benefits disclosed by Sano.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asada combined with Sano as applied to claim 1 above, further combined with additional teachings in Asada.

The combined teachings of Asada and Sano render obvious a toner as described in paragraph 4 above, which is incorporated herein by reference.

The amount of 7 parts by weight of carbon black in Asada's example 5 is outside the range of 8 to 13 parts by weight per 100 parts by weight of binder resin recited instant claim 7. However, Asada teaches that the amount of colorant is "not specifically limited, but is preferably set within a range from 3 to 15 parts by weight based on 100 parts by weight of the fixing resin." Col. 4, lines 14-16. Asada further teaches that "in the case that the colorant is carbon black, since carbon black itself has a conductivity, the amount of the colorant is preferably set considering the electric characteristics of the toner into consideration [sic]." Col. 4, lines 16-21. Thus, it well-known in the art that the amount of carbon black is a result-effective variable, the variation of which is presumably within the skill of the ordinary worker in the art.

Accordingly, it would have been obvious to a person having ordinary skill in the art, in view of the teachings of Asada, to vary through routine experimentation the amount of carbon black in the toner rendered obvious over the combined teachings of Asada and Sano, such that the resultant toner comprises carbon black in an amount within the range recited in instant claim 7, because that person would have had a reasonable expectation of

successfully obtaining a toner having the benefits disclosed by Asada and Sano, and having an increased conductivity.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (703) 308-3625. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (703) 308-2464. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9311 (Rightfax) for after final faxes, and (703) 872-9310 for other official faxes.

Any inquiry of papers not received regarding this communication or earlier communications, or of a general nature or relating to the status of this application or proceeding should be directed should be directed to the Customer Service Center of Technology Center 1700 whose telephone number is (703) 306-5665.

JLD
February 18, 2003

Janis L. Dote
JANIS L. DOTE
PRIMARY EXAMINER
GROUP 1500
1700